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Robert Albanese

University of Illinois

College of Commerce and Business Administration
University of Illinois at Urbana-Champaign

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# THE USE OF A MANAGERIAL DIFFERENTIAL TO COMPARE THE AFFECTIVE MEANING OF MANAGEMENT OF MANAGERS AND STUDENTS

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## Introduction

This paper reports some results of research concerned with the affective meaning of management. Affective meaning refers to how people feel about ideas, things, events, or people. It is concerned with attitudes and sentiments toward an object. Denotative meaning, on the other hand, refers to what a thing is or what it does. Thus, one denotative meaning of management is, "management is planning, organizing,...the activities of other people." An affective meaning of management is, "management is good, potent, and active." Affective meaning is multi-dimensional but tends to be primarily evaluative, that is, expressive of attitudes toward an idea, person, object, or event. If it is true that attitudes bear some relationship to behavior, then greater knowledge and understanding of management's affective meaning may provide additional insights into managerial behavior.

This paper also reports data comparing the affective meaning managers and students attach to management. The finding that managers and students feel differently about management would not take many people by surprise. Such differences are everywhere to be found and are not difficult to understand. However, this research attempts to locate specific differences and attempts to measure them. The hope of this aspect of the research was and is that university management education might benefit from additional knowledge about differences and similarities in the affective meaning managers and students attach to management.

The main research tool used in this research was the semantic differential technique. A brief discussion of the use of this technique in developing a managerial differential is included in this paper. Then management is analyzed in terms of 61 concepts and a three factor model of management is presented. Finally, the managerial differential and the three factor model are used to present information about managers and students and to compare the two groups.

## The Development of a Managerial Differential[1]

This section of the paper will discuss briefly the procedure followed in developing a semantic differential instrument for use in studying the management area. A semantic differential (SD) is a collection of rating scales anchored by a set of bipolar adjectives. An SD provides a means for respondents to express the affective meaning they attach to various concepts. The main problem in developing a SD has to do with selecting bipolar adjectives to serve as "scales" that will be useful in measuring the "meaning" of concepts, where meaning is commonly a multi-dimensional construct.

The first step in constructing a SD for research use is to select the concepts or stimuli that will represent the content area being studied. In the present study all concepts are nouns, and, with few exceptions, represent a concept of some relevance to management. The concepts were selected from management textbooks and were solicited from managers and students. A list of the 61 concepts used in this study is contained in Table II. For purposes of this study these 61 concepts make up the management content domain.

The next step in developing a SD is to select the bipolar adjectives that will serve as scales for measuring affective meaning. The scale consists of the bipolar adjective pair separated (in this study and in most SD studies) by a seven-step rating scale which allows the subject to respond with varying degrees of intensity. The process of choosing scales is much more structured than that of choosing concepts. The ideal situation would be to have one scale to represent each dimension of meaning. If meaning is found to have three dimensions (Evaluation, Potency, and Activity, for example) then, ideally, the SD would consist of three scales (bad-good, strong-weak, and active-passive, for example) each of which is

a "pure" measure of one dimension. In practice, a set of scales is usually used to represent a dimension of meaning.

Bipolar adjectives were obtained from ninety students and professors and from eighty managers. Each subject was given a set of twenty nouns selected from the 61 concepts listed in Table I. The subjects were asked to write after each noun those adjectives that come to their mind when they see the noun. This procedure resulted in over 10,000 responses which were analyzed according to frequency (number of times a response was given) and diversity (number of different concepts that elicited a given response). Those responses with the highest frequency and diversity were then correlated in order to determine which responses were the most independent. The result of this procedure was a list of 93 adjectives meeting criteria of frequency, diversity, and independence. Opposites to these qualifiers were solicited from students and the outcome was that 49 of the responses had, according to the students, clear opposites.

The 49 pairs of bipolar adjectives were set against each of the 61 management concepts, and were administered, with appropriate instructions (2), to two samples: 399 University of Illinois Commerce College and Graduate College students and 464 managers. The managerial sample consisted of managers from manufacturing, government, military, and marketing. A complete set of responses consisted of 2,989 judgments (61 concepts X 49 scales per concept). Since that many judgments is clearly too many to require of a single subject, the task was divided so that each subject responded to ten or fewer concepts (a maximum of 490 judgments). The number of subjects responding to the concepts differed with each concept. The mean number of subjects responding to each concept was about 50 for both the managers and the students.

The data resulting from the administration of the 49 scale instrument was analyzed in a variety of ways. Of particular interest here is the analysis aimed at the selection of particular bipolar adjective pairs that would be used on a semantic differential. For that purpose, means across subjects for each concept and for each scale were computed. For example, for the concept BUSINESSMAN 49 scale means were computed for the student group and 49 scale means were computed for the manager group. This was done for each of the 61 concepts. The scale means were then summed across concepts and a mean of means was computed resulting in 49 means each representing a mean score on a scale across subjects and across concepts.

The 49 means were correlated and the correlation matrix was subjected to a principal components analysis. The result was a factor structure for the manager group and a factor structure for the student group. Since the two factor structures were highly congruent the two groups were combined into one group. A principal components and varimax analysis of the data of the combined group yielded four factors that could be considered as dimensions of affective meaning of management. The four factors accounted for seventy percent of the total variance in the matrix.

Factor I (36 percent of the total variance) is represented by such words as valuable, reasonable, logical, practical, realistic, right, desirable, reliable, efficient, good, and fair. These adjectives are evaluative in tone and provide a means for expressing attitudes toward management concepts. Factor I will be called Evaluation.

Factor II (14 percent of the total variance) provides a means for describing the climate or atmosphere of management. Adjectives with high loadings on Factor II are free, loose, unstructured, friendly, generous, and interesting. Factor II will be called Climate.

Factor III (12 percent of the total variance) is similar to Osgood's Potency factor. Adjectives representing Factor III are huge, big, and complex. Factor IV, an Activity factor with eight percent of the total variance is represented by active, ambitious, and exciting.

These four factors can be considered as affective meaning dimensions of management. The three highest loading scales on each of the four factors will be used to represent the factors. The twelve pairs of bipolar adjectives with a seven-step rating scale will be called a Managerial Differential (MD). The MD is shown in Figure 1. The factor that each of the twelve scales belongs to is indicated by the letter at the right of each scale.

MANAGEMENT CONCEPT

| | Extremely | Quite | Slightly | Neither One Nor The Other | Slightly | Quite | Extremely | | |
|---|---|---|---|---|---|---|---|---|---|
| Structured | _____: | _____: | _____: | _____: | _____: | _____: | _____: | Unstructured | (C) |
| Little | _____: | _____: | _____: | _____: | _____: | _____: | _____: | Big | (P) |
| Impractical | _____: | _____: | _____: | _____: | _____: | _____: | _____: | Practical | (E) |
| Ambitious | _____: | _____: | _____: | _____: | _____: | _____: | _____: | Lazy | (A) |
| Valuable | _____: | _____: | _____: | _____: | _____: | _____: | _____: | Worthless | (E) |
| Reasonable | _____: | _____: | _____: | _____: | _____: | _____: | _____: | Unreasonable | (E) |
| Dull | _____: | _____: | _____: | _____: | _____: | _____: | _____: | Exciting | (A) |
| Free | _____: | _____: | _____: | _____: | _____: | _____: | _____: | Restricted | (C) |
| Tiny | _____: | _____: | _____: | _____: | _____: | _____: | _____: | Huge | (P) |
| Complex | _____: | _____: | _____: | _____: | _____: | _____: | _____: | Simple | (P) |
| Passive | _____: | _____: | _____: | _____: | _____: | _____: | _____: | Active | (A) |
| Tight | _____: | _____: | _____: | _____: | _____: | _____: | _____: | Loose | (C) |

FIGURE 1

MANAGERIAL DIFFERENTIAL

Concept Factor Analysis

Since the 61 concepts were supposed to be representative of the management area and were selected, for the most part, because of their relevance to management, the expectation was that the concepts could be represented by one or two factors. A concept factor analysis was done in order to determine whether this expectation was warranted.

The procedure followed for the concept factor analysis was the same as that for the scale factor analysis. A mean score was computed on all 49 scales for each concept across subjects. The 61 means were correlated and the 61 x 61 matrix factor analyzed. The percent variance accounted for by the first four principal components factors is shown in Table I. For students and managers, separately and combined, the first four factors account for over 90% of the total variance.

TABLE I

PERCENT VARIANCE ACCOUNTED FOR BY FIRST FOUR PRINCIPAL COMPONENTS CONCEPT FACTORS IN SEMANTIC DIFFERENTIAL STUDY OF THE MEANING OF MANAGEMENT: BY GROUPS

| | GROUP | | |
|---|---|---|---|
| Factor | Students | Managers | Combined |
| 1 | 80.55 | 91.63 | 88.61 |
| 2 | 5.34 | 2.00 | 3.17 |
| 3 | 3.84 | 1.30 | 2.27 |
| 4 | 2.05 | .79 | 1.23 |
| 5 - 61* | 8.22 | 4.28 | 4.72 |

*Factors 5 through 61 had roots of less than 1.00, which is usually considered as error variance.

Although four factors were rotated using the varimax criterion, the rotation of three factors gave the best structure. The factor loadings for three factors are shown in Table II for the student and manager groups, separately and combined.

INSERT TABLE II HERE

As Table II indicates, for each concept with very few exceptions, the proportion of total variance that is common factor variance is very high ($h^2 > .85$), indicating that the reliability of each concept measure is high and that the proportion of the total variance that is error variance is low.

An inspection of the factor loadings in Table II indicates very little difference between the student and manager groups. The most notable difference is that the student's Factor I is similar to the manager's Factor II and vice versa. Since the percent variance accounted for by each of the students' first two factors is approximately equal (40% and 38%, respectively), not much can be made of the ordering of the factors. Since the concepts with highest loadings are about the same for the student group as for the manager group, further attention will be directed at the factor loadings for the combined student and manager groups.

The concepts (listed according to size of factor loading) with the highest loadings on Factor I (37% of the total variance) are: Schedules, Budgets, Accounting, Chain of Command, Span of Control, Organizational Structure, Time, Control, Money, Committees, Efficiency, and Costs. Although all of these concepts have loadings of .70 or more, they are not pure loadings -- all have loadings of .41 or more on one or both of the other two factors. Some other concepts with highest loadings on Factor I are: Production, Computers, Authority, Business Education, Quality, Responsibility, Organization, Mathematics, Private Property, and Businessman.

TABLE II

FACTOR LOADINGS ON FIRST THREE PRINCIPAL COMPONENTS FACTORS ON 61 CONCEPTS ACROSS 49 SCALES IN SEMANTIC DIFFERENTIAL STUDY OF THE MEANING OF MANAGEMENT: BY GROUP

| CONCEPT | GROUP | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | STUDENTS | | | | MANAGERS | | | | COMBINED | | | |
| | I | II | III | $h^2$ | I | II | III | $h^2$ | I | II | III | $h^2$ |
| . Businessman | .70 | .60 | .27 | .91 | .60 | .61 | .49 | .97 | .66 | .53 | .48 | .94 |
| . Span of Control | .82 | .49 | .18 | .95 | .53 | .71 | .45 | .99 | .76 | .52 | .37 | .98 |
| . Profit | .67 | .55 | .39 | .91 | .58 | .61 | .51 | .96 | .64 | .58 | .46 | .96 |
| . Executive salaries | .53 | .62 | .41 | .83 | .62 | .62 | .44 | .96 | .54 | .58 | .50 | .88 |
| . Influence | .60 | .65 | .37 | .92 | .56 | .60 | .53 | .96 | .60 | .58 | .51 | .95 |
| . Small business | .43 | .71 | -.20 | .73 | .59 | .63 | .35 | .86 | .58 | .69 | .15 | .83 |
| . Costs | .77 | .22 | .48 | .87 | .38 | .71 | .54 | .94 | .71 | .27 | .58 | .92 |
| . Decision-making | .62 | .73 | .23 | .97 | .58 | .66 | .45 | .98 | .63 | .65 | .41 | .98 |
| . Efficiency | .74 | .62 | .17 | .95 | .61 | .64 | .43 | .98 | .71 | .60 | .36 | .98 |
| . Organizational structure | .83 | .45 | .27 | .97 | .62 | .66 | .40 | .98 | .75 | .50 | .41 | .99 |
| . Work | .67 | .70 | .14 | .96 | .68 | .57 | .44 | .99 | .62 | .68 | .37 | .98 |
| . Organizational goals | .68 | .68 | .21 | .97 | .61 | .61 | .47 | .98 | .65 | .62 | .41 | .98 |
| . Quality | .66 | .70 | .04 | .93 | .61 | .65 | .42 | .98 | .68 | .65 | .28 | .96 |
| . Competition | .50 | .69 | .42 | .90 | .67 | .45 | .56 | .98 | .49 | .67 | .53 | .96 |
| . Power | .71 | .47 | .47 | .94 | .49 | .57 | .65 | .98 | .62 | .50 | .59 | .98 |
| . Committees | .72 | .56 | -.03 | .83 | .55 | .71 | .36 | .94 | .72 | .59 | .24 | .92 |
| . Planning | .67 | .68 | .20 | .96 | .68 | .58 | .43 | .98 | .63 | .66 | .38 | .98 |
| . Motivation | .46 | .82 | .27 | .96 | .74 | .51 | .42 | .99 | .50 | .76 | .40 | .99 |
| . Conflict | -.26 | .02 | .74 | .62 | .43 | .30 | .72 | .79 | -.05 | .37 | .76 | .72 |
| . Big business | .61 | .28 | .70 | .94 | .58 | .50 | .62 | .98 | .53 | .41 | .71 | .97 |
| . Private property | .71 | .56 | .23 | .87 | .64 | .61 | .38 | .93 | .66 | .58 | .36 | .91 |
| . Communication | .59 | .77 | .17 | .97 | .72 | .54 | .38 | .96 | .58 | .72 | .35 | .98 |

| CONCEPT | STUDENTS | | | | MANAGERS | | | | COMBINED | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | I | II | III | $h^2$ | I | II | III | $h^2$ | I | II | III | $h^2$ |
| 23. Human being | .54 | .71 | .24 | .84 | .69 | .54 | .42 | .95 | .54 | .72 | .36 | .94 |
| 24. Time | .79 | .44 | .16 | .85 | .48 | .70 | .45 | .92 | .75 | .46 | .38 | .91 |
| 25. Executive | .64 | .65 | .28 | .92 | .63 | .62 | .43 | .97 | .63 | .61 | .44 | .96 |
| 26. Control | .81 | .48 | .26 | .95 | .58 | .68 | .44 | .98 | .73 | .55 | .38 | .98 |
| 27. Chain of command | .88 | .31 | .20 | .92 | .47 | .75 | .44 | .98 | .79 | .46 | .35 | .97 |
| 28. Morale | .50 | .81 | .13 | .92 | .73 | .55 | .39 | .98 | .54 | .76 | .37 | .97 |
| 29. Business | .66 | .57 | .47 | .98 | .63 | .50 | .57 | .98 | .57 | .61 | .54 | .98 |
| 30. Organization | .76 | .52 | .35 | .98 | .61 | .60 | .51 | .99 | .67 | .54 | .49 | .99 |
| 31. Authority | .77 | .50 | .31 | .95 | .53 | .67 | .51 | .98 | .69 | .55 | .44 | .98 |
| 32. Responsibility | .72 | .64 | .14 | .96 | .64 | .61 | .44 | .98 | .67 | .64 | .36 | .98 |
| 33. Opportunity | .39 | .80 | .25 | .85 | .74 | .50 | .44 | .98 | .49 | .76 | .38 | .97 |
| 34. Schedules | .88 | .40 | .16 | .96 | .51 | .75 | .38 | .98 | .82 | .44 | .33 | .98 |
| 35. Success | .54 | .74 | .32 | .94 | .68 | .54 | .48 | .98 | .54 | .70 | .43 | .97 |
| 36. Achievement | .57 | .76 | .25 | .96 | .69 | .57 | .43 | .99 | .57 | .72 | .37 | .98 |
| 37. Practical experience | .61 | .76 | .13 | .96 | .71 | .58 | .39 | .98 | .60 | .71 | .32 | .98 |
| 38. Free enterprise | .54 | .70 | .40 | .93 | .65 | .47 | .57 | .97 | .53 | .67 | .49 | .9[illegible] |
| 39. Leadership | .64 | .72 | .18 | .97 | .66 | .59 | .44 | .99 | .62 | .68 | .37 | .99 |
| 40. Budgets | .88 | .37 | .20 | .94 | .44 | .75 | .47 | .97 | .80 | .42 | .38 | .97 |
| 41. Science | .53 | .73 | .32 | .91 | .68 | .50 | .51 | .97 | .52 | .68 | .47 | .95 |
| 42. Religion | .50 | .61 | .25 | .68 | .74 | .51 | .35 | .93 | .52 | .70 | .33 | .87 |
| 43. Economics | .67 | .63 | .29 | .93 | .52 | .61 | .57 | .96 | .65 | .56 | .49 | .97 |
| 44. Politics | .32 | .12 | .82 | .79 | .41 | .38 | .76 | .89 | .33 | .28 | .82 | .86 |
| 45. Theory | .47 | .68 | .28 | .77 | .67 | .52 | .48 | .95 | .52 | .69 | .42 | [illegible] |
| 46. Freedom | .39 | .88 | .12 | .94 | .78 | .48 | .38 | .97 | .47 | .82 | .30 | .97 |
| 47. Love | .20 | .89 | .18 | .86 | .77 | .44 | .37 | .93 | .34 | .83 | .32 | .91 |
| 48. Art | -.02 | .93 | .23 | .91 | .84 | .31 | .41 | .96 | .17 | .90 | .34 | .95 |
| 49. Production | .76 | .39 | .39 | .88 | .59 | .59 | .49 | .94 | .69 | .43 | .51 | .92 |
| 50. Money | .74 | .44 | .36 | .87 | .43 | .69 | .51 | .93 | .72 | .44 | .47 | .93 |

| CONCEPT | GROUP | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | STUDENTS | | | | MANAGERS | | | | COMBINED | | | |
| | I | II | III | $h^2$ | I | II | III | $h^2$ | I | II | III | $h^2$ |
| 51. Labor unions | .49 | .24 | .76 | .88 | .21 | .35 | .87 | .92 | .39 | .19 | .85 | .91 |
| 52. Accounting | .83 | .47 | .05 | .92 | .54 | .70 | .40 | .95 | .80 | .47 | .30 | .95 |
| 53. General Motors | .54 | .28 | .69 | .85 | .37 | .32 | .79 | .86 | .43 | .28 | .78 | .87 |
| 54. Psychology | .46 | .81 | .20 | .91 | .57 | .55 | .46 | .85 | .52 | .70 | .39 | .92 |
| 55. College professor | .56 | .77 | -.01 | .90 | .68 | .58 | .34 | .91 | .59 | .72 | .23 | .92 |
| 56. College student | .49 | .71 | .18 | .78 | .61 | .47 | .50 | .84 | .48 | .64 | .40 | .81 |
| 57. Business education | .73 | .62 | .18 | .94 | .62 | .59 | .45 | .93 | .69 | .58 | .40 | .96 |
| 58. Computers | .73 | .47 | .26 | .81 | .57 | .60 | .42 | .87 | .69 | .41 | .45 | .85 |
| 59. I.B.M. | .63 | .51 | .42 | .84 | .54 | .47 | .64 | .92 | .57 | .46 | .60 | .90 |
| 60. Mathematics | .72 | .47 | .21 | .78 | .61 | .61 | .46 | .95 | .67 | .55 | .40 | .92 |
| 61. Marketing | .49 | .71 | .41 | .90 | .63 | .47 | .54 | .91 | .47 | .64 | .56 | .94 |
| Percent of Total Variance | 40% | 38% | 12% | | 37% | 33% | 25% | | 37% | 37% | 20% | |

Most of the concepts mentioned in the above paragraph appear to relate to ideas frequently mentioned in management literature, such as production-centered, initiating-structure, task-orientation, and, perhaps, Theory X. The concepts suggest a manager operating in a classical organization with time-schedule pressures and costs-money-control problems. They also emphasize internal-management problems as opposed to problems of organizations and management relating to the environment. This concept factor will be called Internal Operations because it contains concepts primarily concerned with "getting a job done" within the organization. The Internal Operations factor will be represented by: Schedules, Budgets, Organizational Structure, Time, Control, Committees, Efficiency, Costs, Authority, and Responsibility (3). The following hypothesis will be tested: The Managers will give significantly higher (at .05 level) ratings to the Internal Operations concepts than will the students.

The concepts with highest loadings on Factor II (37% of the total variance) are: Art, Love, Freedom, Motivation, Morale, Opportunity, Achievement, Human Being, Communication, College Professor, Practical Experience, Psychology, Success, and Religion. These concepts have Factor II loadings of .70 or more, but all have loadings on one or both of the other factors of .34 or more. None of the 61 concepts in the study is a "pure" representative of any of the three factors. Some other concepts with highest loadings on Factor II are: Small Business, Theory, Science, Leadership, and Work.

These Factor II concepts reveal a different aspect of management than those representative of Factor I. Factor II is more in line with notions of consideration, people-centered, and Theory Y. The variance accounted for by Factor I and II is equal, indicating these two factors

are equally useful or "important" within the context of this study. As with the concepts representing Factor I, Factor II concepts stress internal dimensions of management. Motivation, morale, opportunity, communication, and achievement are found, for the most part, inside the organization. Factor II will be called Internal Environment which emphasizes the manager's task of creating an environment in which employees have the opportunity to self-develop and realize their potential.

The Internal Environment factor will be represented by: Freedom, Motivation, Morale, Opportunity, Achievement, Human Being, Communication, Success, Leadership, and Practical Experience. The following hypothesis will be tested: The students will give significantly higher (at .05 level) ratings to the Internal Environment concepts than will the managers.

Labor Unions, Politics, General Motors, Conflict, Big Business, and I.B.M. are the concepts with highest loadings (.71 to .85) on Factor III. There are no other concepts having their highest loading on Factor III, although Power has a .59 loading, Costs a .58 loading, Marketing a .56 loading, Business a .54 loading, and Competition a .53 loading. Small Business, Quality, Committees, and College Professors have small loadings on Factor III. The highest loading concepts on Factor III appear to emphasize external aspects of management. They are suggestive of negotiation, strategy, power, and bigness. The idea of "social responsibility" of management does not come through in the concepts loading on Factor III, but, perhaps, the social responsibility idea is inadequately represented in the list of 61 concepts. In any case, the manager's responsibility to deal with his environment is suggested by the concepts loading on Factor III. This factor will be called External Relations, which emphasizes the manager's need to be a representative of his group to "outsiders" -- whether within the company or outside of it.

No hypothesis concerning the concepts loading on the External Operation's factor will be tested.

In sum, the concept factor analysis of the 61 concepts used in this study resulted in a three-dimensional model of management: Internal-Operations, Internal-Environment, and External Relations. These three dimensions will be examined using the twelve-scale Managerial Differential discussed previously.

Composite Factor Scores (C.F.S.)

The data collected from managers and students for the purpose of constructing the twelve scale Managerial Differential can be used to compare manager responses with student responses. One type of comparison utilizes Composite Factor Scores which are, for each of the four dimensions of Evaluation, Climate, Potency, and Activity, mean scores on the three scales representing each dimension.

Composite Factor Scores are usually expressed as a deviation from the scale midpoint which in the present study is 4.00. Thus, the C.F.S. for the concept BUSINESSMAN are 1.615 (managers) and 1.196 (students) on the Evaluation Factor. The 1.615 is arrived at by computing a mean from the raw scores of the managers on the valuable-worthless, reasonable-unreasonable, and impractical-practical scales and subtracting 4.000 from the result. The 1.615 represents a deviation from "Meaningless." The higher the C.F.S., the more meaningful the concept to the respondents. Positive C.F.S. represent deviations from the midpoint toward the "good" or positive end of the seven-step scale. Negative C.F.S. represent deviations toward the low end of the scale.

Table III shows C.F.S. of Managers and Students on the ten Internal-Operations concepts on the four factors of Evaluation, Climate, Potency, and Activity. The Climate and Potency C.F.S. are not useful in distinguishing managers and students. In the Climate factor only the Organizational Structure C.F.S. are significantly different. All Climate C.F.S. are negative indicating a feeling that both groups consider this set of Internal Operations concepts "slightly restricted, structured, and tight." In the Potency factor, Schedules and Responsibility C.F.S. are significantly different. Most of the C.F.S. in the Potency factor have a value of less than 1.00 indicating a feeling somewhere between neutral and "slightly huge, big, and complex." On the Climate and Potency factors, the hypothesis that the managers would rate the set of Internal-Operations concepts significantly higher than the students is rejected.

On the other hand, Table III indicates that the Evaluation and Activity factors are useful in distinguishing students and managers. On every one of the Internal-Operations concepts the C.F.S. of managers are higher than the C.F.S. of students, and in sixteen out of twenty cases the differences are significant. A general interpretation of the Evaluation C.F.S. is that the managers view this set of concepts as "quite valuable, reasonable, and practical." Although the students also rate these concepts positively they are significantly less intense in their "attitude" than are the managers. The evaluative factor almost serves as a definition for the term "attitude," and consequently scales on the evaluative factor serve as measures of verbalized attitudes. (4)

TABLE III

COMPOSITE FACTOR SCORES AND t-VALUES ON TEN INTERNAL-OPERATIONS CONCEPTS ON FOUR MEANING FACTORS: BY STUDENT AND MANAGER GROUPS

| Internal-Operations Concept | Meaning Factor: Evaluation | | | Climate | | | Potency | | | Activity | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Managers | Students | t | Managers | Students | t | Managers | Students | t | Managers | Students | t |
| Schedules | 2.16 | 1.32 | 4.61* | -1.04 | -1.18 | .79 | .65 | .33 | 2.32* | 1.19 | .57 | 3.52* |
| Budgets | 1.97 | 1.56 | 2.40* | -1.27 | -1.42 | .81 | .90 | .72 | .93 | .81 | .43 | 1.90 |
| Organizational Structure | 2.03 | 1.48 | 3.25* | - .81 | -1.32 | 3.79* | .84 | 1.13 | 1.43 | 1.58 | .58 | 6.14* |
| Time | 1.53 | 1.02 | 2.52* | - .95 | - .89 | .32 | .44 | .35 | .44 | 1.47 | .42 | 5.58* |
| Control | 2.10 | 1.42 | 3.78* | - .92 | -1.19 | 1.44 | .98 | 1.02 | .24 | 1.32 | .67 | 3.64* |
| Committees | 1.33 | .96 | 1.73 | - .50 | - .49 | .08 | .32 | .17 | .87 | .82 | .39 | 1.99* |
| Efficiency | 2.30 | 2.15 | 1.01 | - .92 | - .87 | .23 | .92 | .88 | .21 | 1.56 | 1.32 | 1.01 |
| Costs | 1.42 | .74 | 3.60* | - .85 | - .91 | .33 | .93 | .92 | .06 | .84 | .40 | 2.98* |
| Authority | 1.74 | 1.00 | 4.26* | - .91 | - .89 | .11 | .87 | .73 | .89 | 1.42 | .71 | 4.18* |
| Responsibility | 2.06 | 1.54 | 3.54* | - .66 | - .91 | 1.50 | 1.20 | .81 | 2.25* | 1.57 | 1.17 | 2.31* |

*t significant at .05 level = 1.98; at .01 level = 2.63.

The Activity factor C.F.S. result in the highest t values. In terms of a feeling characterized by such words as active, ambitious, and exciting the managers, although not very intense in their feelings, are significantly more positive than the students toward the Internal-Operations concepts. On the basis of the C.F.S. on the Evaluation and Activity factors, the hypothesis that the managers would rate the set of Internal-Operations concepts significantly higher is accepted.

Table IV shows C.F.S. of Managers and Students on the ten Internal-Environment concepts. Once again, the C.F.S. on the Climate and Potency factors are not useful in distinguishing managers and students. Both managers and students consider the Internal-Environment concepts "meaningless" (C.F.S. near zero) on the Climate factor and "slightly potent" (C.F.S. near 1.00) on the Potency factor. The Evaluation and Activity factors are useful in distinguishing managers and students. In seventeen of twenty cases the C.F.S. are significantly different, however, in every case the manager's, rather than the student's, have the higher C.F.S. The managers rate the ten concepts higher than the students. Thus, on all four factors, the hypothesis that the students would rate Internal-Environment concepts significantly higher than the managers is rejected.

The C.F.S. of managers and students on the six External Relations concepts were not significantly different except on the Big Business concept. The manager's rate Big Business significantly higher on the Evaluation, Climate and Activity factors and significantly lower on the Potency factor. Big Business was the only concept out of the sixty-one included in this study on which the managers and students differed significantly on all four meaning factors.

TABLE IV

COMPOSITE FACTOR SCORES AND t-VALUES ON TEN INTERNAL-ENVIRONMENT CONCEPTS ON FOUR MEANING FACTORS: BY STUDENT AND MANAGER GROUPS

| Internal Environment Concept | Meaning Factor | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Evaluation | | | Climate | | | Potency | | | Activity | | |
| | Managers | Students | t | Managers | Students | t | Managers | Students | t | Managers | Students | t |
| Freedom | 2.78 | 1.80 | 2.92* | .33 | .82 | 2.44* | 1.31 | 1.33 | .07 | 1.68 | 1.32 | 2.13* |
| Motivation | 2.01 | 1.51 | 2.96* | -.10 | .25 | 2.09* | .96 | 1.03 | .40 | 1.77 | 1.33 | 2.73* |
| Morale | 1.81 | 1.48 | 1.73 | -.07 | .08 | .89 | 1.01 | .85 | .98 | 1.49 | .71 | 4.43* |
| Opportunity | 1.62 | 1.03 | 2.56* | -.02 | .27 | 1.45 | 1.09 | .47 | 2.87* | 1.48 | .88 | 2.83* |
| Achievement | 2.07 | 1.50 | 3.55* | -.20 | -.15 | .29 | 1.04 | .75 | 1.67 | 1.84 | 1.41 | 2.19* |
| Human Being | 1.73 | 1.14 | 3.00* | -.05 | -.25 | .97 | .91 | .96 | .28 | 1.47 | .91 | 2.55* |
| Communication | 2.10 | 1.95 | .98 | -.06 | -.21 | .83 | .82 | .95 | .66 | 1.33 | 1.06 | 1.52 |
| Success | 1.97 | 1.43 | 3.52* | -.48 | -.15 | 1.85 | 1.14 | .99 | .87 | 1.96 | 1.50 | 2.80* |
| Leadership | 2.15 | 1.50 | 4.20* | -.59 | -.39 | 1.25 | 1.11 | .67 | 2.77* | 1.85 | 1.32 | 3.11* |
| Practical Experience | 2.17 | 1.76 | 2.61* | -.02 | -.06 | .23 | .90 | .61 | 1.77 | 1.61 | .98 | 3.68* |

*t significant at .05 level = 1.99; at .01 level = 2.63.

In sum, the C.F.S. indicate that managers are significantly more positive than students in their evaluation of several concepts concerned with the manager's task of "getting a job done." This set of concepts represents a factor that has been called Internal-Operations. It may be said that the managers have a more favorable "attitude" toward these concepts than do students. The managers also consider the Internal-Operations concepts significantly more "active, ambitious, and exciting." In addition, the same conclusion applies to a set of concepts representing an Internal-Environment factor which reflects the manager's task of "creating an environment in which employees have the opportunity to self-develop and realize their potential." Finally, there is no significant difference in the manager and student ratings on a set of concepts representing an External Relations factor which reflects the need of the manager to represent his group to those outside his immediate area of responsibility.

If the significant differences noted above accurately reflect real differences between managers and students in their feelings toward management concepts they may be due to a number of factors. First, managers live in a world of schedules, budgets, costs, control, authority, responsibility, and organizational structure. In addition to feeling pressures and restrictions from these sources (negative C.F.S. on the Climate factor), managers may learn to appreciate their value and necessity. Furthermore, the managers included in this study, although from many types of organizations, are predominantly "middle managers" and may be rather more concerned with such traditional management concepts than "top managers" would be. Students, on the other hand, although frequently very busy and under a unique kind of pressure, do not feel as much pressure from these sources, vis-a-vis, managers.

Second, many students have strong biases against organizational concepts. In addition to there being a pervasive cultural anti-organization bias, the students in this study have been exposed to academic instruction that tends to emphasize "organizational behavior" and minimizes the need for schedules, budgets, et cetera. In view of the high ratings given these concepts by managers, there may be a need in university management education for more emphasis on them. Such emphasis could not only deal with technical specifics but could also stress the importance in organizations of such task-oriented concepts.

Third, the higher manager C.F.S. on the Internal-Environment concepts may reflect an appreciation for such values based on experience in organizations. Furthermore, such words as Opportunity, Achievement, Leadership, and Success may be less of an abstraction to managers than to students.

Finally, the differences may reflect none of the above factors. They may be an artifact of this study. It is known that although the students tend to be a homogeneous group the managers are very heterogeneous. The manufacturing managers respond to concepts in ways significantly different than the marketing managers. These differences are being examined. In addition, managers from different levels of organizations will be studied and groups other than students and managers will be compared. In future study the Managerial Differential will be used along with biographical information and performance measures. Additional tests of the reliability and validity of the MD are also being conducted.

Additional Comparisons

Ranks of C.F.S. It is interesting to observe the similarities in the rankings of C.F.S. on the four meaning factors. Table V shows the top and bottom five rankings by group. Of the 61 concepts, both managers and students rank Efficiency as the most and Conflict as the least valuable, reasonable, and practical. Both groups consider Art, Freedom, and Love as the most free, loose, and unstructured. Both groups consider General Motors the most and Committees the least "potent." Finally, students and managers rank Competition first and second, respectively, as the most Active, Ambitious, and Exciting. Both groups agree that Accounting is the least "Active." The rank-difference correlations of the 61 C.F.S. of the two groups are: Evaluation = .78, Climate = .85, Potency = .82, and Activity = .67.

Individual and Group Polarization (5). Another interesting type of comparison that can be made between managers and students has to do with polarization. In terms of the semantic differential technique, the more polarized a concept, the more "meaningful" that concept. A concept is polarized to the extent that ratings tend to be toward the extreme scale positions, regardless of the direction or the meanings of the adjectives on the ends of the scale. For example, a concept that receives ratings of 7 is more polarized than a concept that receives ratings of 5.

There are several methods of computing polarity but the methods yield values that are highly correlated. A method based on an assumption of strict linear departure from the neutral point of scales will be discussed here. This method is known as the average absolute deviation from the midpoint of all scales. It can be used in two ways: (1) Individual Polarization - the absolute deviations from the midpoint are summed over individuals and over scales (the twelve scales of the Managerial Differential)

TABLE V

TOP AND BOTTOM FIVE RANKINGS OF 61 COMPOSITE FACTOR SCORES

ON FOUR MEANING FACTORS: BY MANAGER AND STUDENT GROUP

| | Meaning Factor | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Evaluation | | Climate | | Potency | | Activity | |
| Ranking | Managers | Students | Managers | Students | Managers | Students | Managers | Students |
| 1 | Efficiency | Efficiency | Art | Art | General Motors | General Motors | Success | Competition |
| 2 | Freedom | Communication | Freedom | Love | I.B.M. | Big Business | Competition | Love |
| 3 | Mathematics | Mathematics | Love | Freedom | Science | I.B.M. | Free Enterprise | Power |
| 4 | Computers | Planning | Practical Experience | Opportunity | Big Business | Science | Leadership | Success |
| 5 | Practical Experience | Computers | Conflict | Motivation | Politics | Labor Unions | Executive | Science |
| 57 | College Students | Costs | Schedules | Accounting | Span of Control | Time | Committees | Costs |
| 58 | General Motors | General Motors | Chain of Command | Big Business | Schedules | Schedules | Budgets | Committees |
| 59 | Politics | Labor Unions | Budgets | Organizational Structure | Conflict | College Professor | College Professor | Theory |
| 60 | Labor Unions | Politics | Money | Chain of Command | Time | College Student | Psychology | Mathematics |
| 61 | Conflict | Conflict | Labor Unions | Budgets | Committees | Committees | Accounting | Accounting |

and an average computed. Individuals checking on opposite sides of a scale add to the total sum of absolutes. Individual Polarization (P-I) is an index of the average intensity of affective meaning for the individuals in a group, regardless of whether they agree on the direction of meaning (6). P-I reflects individual meaningfulness of a concept but disregards intra-group disagreements on its meanings. (2) Group Polarization - the absolute average deviation of the group mean from the midpoint of the scale. In the Group Polarization (P-G) measure individual's checking opposite sides of a scale will cancel out in the mean and lower the value. P-G reflects group meaningfulness of a concept and takes into account intra-group disagreements on its meaning. For any concept the value of P-G must be equal to or less than the value for P-I and the magnitude of their difference (P-I minus P-G = C.I.) is a direct reflection of what might be called intra-group conflict or instability about the affective meaning of the concept.

Table VI shows the top and bottom five P-I, P-G, and C-I measures for managers and students. No absolute values of the polarity measures are shown in Table VI. The managers had higher P-I values for all 61 concepts than did the students. For example, although managers and students gave Costs a P-I rank of 59 (see Table VI) the managers had a P-I of 1.298 and the students a P-I of 1.060. The correlation of the P-I values = .64. Similarly, the managers had higher P-G values for all but three of the 61 concepts. The correlation of the P-G values = .72. It may be said that the managers, individually and as a group, attach more meaningfulness to the concepts included in this study than do the students. A comparison of the C-I values showed no clear pattern but the managers did have more higher C-I values than the students. The correlation of the C-I values = .33.

TOP AND BOTTOM FIVE RANKED INDIVIDUAL POLARIZATION (P-I),
GROUP POLARIZATION (P-G) AND CONFLICT-INDEX (C-I)
MEASURES: BY MANAGER AND STUDENT GROUP

| | P-I | | P-G | | C-I | |
|---|---|---|---|---|---|---|
| Ranking | Managers | Students | Managers | Students | Managers | Students |
| 1 | Labor Unions | Love | Science | Science | Conflict | Students |
| 2 | Science Freedom | Science | Freedom | Love | Accounting | Committees |
| 3 | Free Enterprise | Big Business | Free Enterprise Leadership Business | Big Business | Time | Conflict |
| 4 | Leadership | Computers | Organizational Goals | I.B.M. | Politics | Time |
| 5 | Business | Planning | Profit | Computers | Labor Unions | Politics |
| 57 | Span of Control | Authority | Art | Opportunity | Competition | I.B.M. |
| 58 | College Student | College Professor | Influence | Time | Science | Power |
| 59 | Costs | Costs | Psychology | College Professor | Efficiency | Budgets |
| 60 | Conflict | College Student | Committees | Committees | Production | Mathematics |
| 61 | Committees | Opportunity | Conflict | Conflict | I.B.M. | Responsibility |

Table VI indicates that in terms of individual meaningfulness (P-I) the managers attach highest rankings to Labor Unions and lowest rankings to Committees. The students rank Love first and Opportunity last. In terms of group meaningfulness (P-G) the managers and students agree that Science is first and Committees and Conflict rank at the bottom.

Summary and Conclusions

The research reported in this paper attempted to measure the affective meaning of management. The semantic differential technique was used to develop a twelve-scale managerial differential. The twelve scales reflect four dimensions, Evaluation, Climate, Potency, and Activity, to the affective meaning of Management. Data from managers and students was used to develop the managerial differential. The same data was used to analyze sixty-one management concepts. The analysis yielded a three factor model of management, and the three factors were named Internal-Operations, Internal-Environment, and External Relations.

Scores on each of the four meaning dimensions were computed for managers and students. The Composite Factor Scores were tested for significant difference. The Climate and Potency dimensions did not yield significant differences. Evaluation and Activity Composite Factor Scores of managers were significantly higher than those of students on both the Internal-Operations concepts and the Internal-Environment concepts. Only one significant difference on an External Relations concept (Big Business) was noted. The ranks of all 61 Composite Factor Scores of managers and students on all four dimensions were correlated. A high correlation was reported.

Measures of individual and group meaningfulness attached to the sixty-one concepts were compared. It was found that the managers, individually

and as a group, attach more meaningfulness to the concepts than the students. However, a measure of intra-group conflict or instability about the meaning of the concepts showed no pattern useful in comparing managers and students

## REFERENCES AND NOTES

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2. Charles E. Osgood, George J. Suci, and Percy H. Tannenbaum, The Measurement of Meaning (Urbana: University of Illinois Press, 1957), pages 84-85.

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